UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

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TITLE

# 1939 FOREST INSECT SURVEY

## SAN BERNARDINO NATIONAL FOREST

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by
S. T. Carlson
Berkeley, California
November 27, 1939

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Forest Insect Laboratory
Berkeley, California
November 27, 1939

# 1939 FOREST INSECT SURVEY,

## SAN BERNARDINO NATIONAL FOREST

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SUBMITTED BY:

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Assistant Conservationist

# 1939 FOREST INSECT SURVEY, SAN BERNARDINO NATIONAL FOREST

The 1939 forest insect survey of this forest was made by Senior Entomologist Miller and Assistant Conservationist Carlson of the Forest Insect Laboratory, Berkeley, California, November 1 to 15, 1939. The entire cost of the survey was borne by the Forest Insect Laboratory.

## METHOD OF SURVEY

A reconnaissance of the important forested areas of this forest was made by the Forest Insect Laboratory during April, 1939. At this time the work was directed toward establishing unit areas with defined boundaries which were based on (1) forest type, (2) topographical features and (3) control factors. Accordingly, four areas -- the Big Bear, Arrowhead, Santa Ana-Mill Creek, and San Jacinto -- have been designated; these have been further divided into smaller units of which there are a total of 20. It is hoped that the units so established will facilitate the surveys and clarify the reports pertaining thereto.

The survey was conducted by making counts from (1) road traverse, (2) topographical viewing, and (3) detailed examinations of infested trees. The stands of this forest as a whole, because of the highly developed road system and topography, quite readily lend themselves to this method of survey. Each district ranger spent at least one day with the survey party and assisted in the survey.

## GENERAL CONDITIONS

Insect infestations during the past year have shown sharp fluctuations in a large part of the forest. A decided infestation increase, epidemic in nature, in the Arrowhead Area has been observed; a general increase has also been recorded in the San Jacinto Area. Other areas have sustained of decreased losses.

## CHARACTER OF INFESTATIONS

Large group kills of ponderosa and Coulter pines in the Arrowhead Area have occurred during the past season. The infestation in this area is of two types. The first, in which immature ponderosa and Coulter pine have been topkilled in groups by the pine engraver beetle, Ips spp., and the lower portion filled in with the western pine beetle Dendroctonus brevicomis Lec. The second type is the killing outright of mature ponderosa and Coulter pines by the western pine beetle. A limited number of sugar pine have been killed by the mountain pine beetle, Dendroctonus monticolae Hopk.

Jeffrey pine losses on the Big Bear Area are due to attacks from the Jeffrey pine beetle, Dendroctonus jeffreyi Hopk. In contradistinction to this, Jeffrey pine losses on the San Jacinto Area are due to attacks by the flatheaded borer, Melanophila spp. Coulter pines in the San Jacinto Area show about equal losses from the attacks of western pine beetles and flatheaded borers.

## CONDITIONS IN UNIT AREAS

A. Arrowhead Area (See map in appendix).

1. Miller Canyon Unit. Infestation in this unit is endemic. The losses, mostly in overmature ponderosa pine, are occurring in the upper south-east portion of the unit. The estimated 1939 loss is 60 trees.

2. Crestline Unit. The infestation in the east half from Seeley Creek to Lake Gregory is epidemic. Groups of immature ponderosa pines have been topkilled by the pine engraver beetle and the remaining bole attacked by the western pine beetle. The infestation has received much comment and caused much concern because of losses on developed home sites and the large groups just south of Lake Gregory. One group of 48 ponderosa pine trees was tallied in this vicinity. It is believed that road construction and development operations which resulted in accumulated slash have induced insect attacks here. The 1939 loss is estimated to be 250 trees. Control has been recommended for this unit east of Seeley Creek.

3. Arrowhead Unit. The infestation in this unit has shown an increase for the past two seasons and has reached epidemic proportions in the majority of the forest stand. Losses in groups are characteristic although large single trees have succumbed to insect attacks. The 1939 unit loss is estimated at 1000 trees. Control has been recommended.

4. Bear Creek Unit. Infestation in this unit is endemic. It is estimated that the 1939 loss will aggregate 50 trees.

5. Crab Flat. A complete examination of this unit was not made by the survey party at this time. The southeastern portion was closely examined and showed only a light loss. There appeared to be considerable kill in the lower portion of this unit between Holcomb and Crab Flat Creeks when viewed from distant points. Ranger Tucker, who had recently visited the area, substantiated this. The low values and inaccessibility of the area together with the remoteness of the infestation are of no consequence at this time. The 1939 loss is estimated to be 300 trees.

6. Rim Unit. The infestation, except for a small area in the eastern portion, is endemic. The 1939 loss is estimated at 25 trees. Maintenance control has been recommended for portions of this unit, together with those in Green and Snow Valleys.

7. Green Valley Unit. Infestation in this unit is endemic. 1939 losses are estimated to be 10 trees

8. Snow Valley. Infestation endemic. Control work carried out in 1939 has been successful in reducing the infestation here. Present loss is occurring on south slopes north of the highway. The 1939 loss is estimated to be 40 trees. Control has been recommended for a portion of the Unit.

B. Big Bear Area (See map in Appendix).

1. Canyon Unit. Infestation endemic. The 1939 loss is estimated to be 10 trees.

2. Fawnskin Unit. The infestation here appears to show increasing tendencies. Abrupt alterations of environmental conditions from streamcourse changes during the past two years, have had adverse effects upon trees along stream courses. The majority of losses are appearing in these places. The 1939 loss is estimated to be 65 trees. Control not recommended.

3. Holcomb Unit. Infestation endemic. Losses similar to those in Fawnskin Unit are being sustained here. The 1939 loss is estimated at 50 trees. Control not recommended.

4. Doble Unit. The principal forest growth of this unit is pinon pine. Evidence of large group kills by the engraver beetle in past years has been observed. No recent activity of this type showed up in the examination. The 1939 loss is estimated at 20 trees.

5. Arrastre Unit. This unit, similar to Doble unit in vegetation, was not examined. Ranger Tucker reports that no alarming losses have been observed.

6. Big Bear Unit. Conditions in this unit appear better than they have for several years. A small infestation extending from the Fawnskin Unit was found just above Fawnskin Settlement. The 1939 loss is estimated to be 25 trees. Control not recommended.

C. Santa Ana - Mill Creek Area (See map in Appendix).

1. Santa Ana Unit. Infestations endemic. The 1939 loss, general throughout the unit, is estimated to be 70 trees. Control not recommended.

2. Mill Creek Unit. Infestation endemic. Cloudbursts in the area the past two years have brought about abrupt stream course changes and resulted in deposition of silt and soil to a depth of 5 to 20 feet

around trees in the canyon bottom. Large groups of trees thus affected have died recently and to outward appearances have been killed by insects. Although many of the dying trees were attacked by insects, brood development was poor. Direct losses from insects along the canyon walls have been rather high for several years. The low values and inaccessibility do not make control feasible. The 1939 loss is estimated to be 50 trees.

D. San Jacinto Area (See map in Appendix).

1. San Jacinto Unit. The 1939 infestation in this area appears to have shown a sharp increase. Group killing of immature trees as well as scattered mature trees has occurred. The 1939 loss is estimated at 100 trees. Due to the high use value of this unit, control has been recommended.

2. Idyllwild Unit. Infestation is endemic, but showing increasing tendencies. The 1939 loss is estimated at 50 trees. Control recommended.

3. Baldy Unit. The western portion of this unit shows a loss of immature trees from flatheaded borers and mature tree losses from the western pine beetle. The infestation has shown but slight fluctuations for several years. The 1939 loss is estimated at 60 trees.

4. Kenworthy Unit. Infestation is localized to two small areas, i.e., Hemet Reservoir and Thomas Mountain. The 1939 loss is estimated to be 50 trees.

1939 Loss Summary - San Bernardino National Forest

| Area | Unit | Est. Season Loss No. Trees | Action Recommended | Area Loss No. Trees |
|---|---|---|---|---|
| Arrowhead | Miller Canyon | 60 | None | 1,735 |
| | Crestline | 250 | Control | |
| | Arrowhead | 1,000 | Control | |
| | Bear Creek | 50 | None | |
| | Crab Flat | 300 | None | |
| | Rim | 25 | Control | |
| | Green Valley | 10 | Control | |
| | Snow Valley | 40 | Control | |
| Big Bear | Canyon | 10 | None | 170 |
| | Fawnskin | 65 | None | |
| | Holcomb | 50 | None | |
| | Doble | 20 | None | |
| | Big Bear | 25 | None | |
| Santa Ana-Mill Creek | Santa Ana | 70 | None | 120 |
| | Mill Creek | 50 | None | |
| San Jacinto | San Jacinto | 100 | Control | 260 |
| | Idyllwild | 50 | Control | |
| | Baldy | 60 | None | |
| | Kenworthy | 50 | None | |
| TOTAL | | 2,285 | | 2,285 |

## RECOMMENDATIONS

The value of forest growth and cover in the highly developed and used areas of the forest warrants measures to prevent depletion of these attributes. Artificial control measures have therefore been recommended in areas where the infestation is of sufficient importance to warrant them.

Adequate control, when the infestation is spread over a wide area, is generally very difficult to obtain on this forest. Much of the infestation area, notably the Arrowhead and Crestline units, is divided into subdivisions and lots for forest home sites and represents some five thousand individual owners. The solicitation of each owner regarding control represents a much larger undertaking than the actual control job itself. One solution to this would be to utilize the facilities of a fire protection district, or to form an association similar to this in which an annual assessment can be made against each property owner. Such an organization when once in operation could provide funds for immediate action when control is necessary. Control jobs in previous years have been relatively easy to carry out in this respect in that the infestation was located on federally owned lands and on lands in large ownerships. The situation at present is one in which many owners are affected; therefore it would be useless to expect favorable results from treatment on federally owned lands or portions of the infestation unit.

Artificial control by the peeling and burning method has been recommended for the following units:

| Infestation Area | Unit | Area (acres) | Estimated No. Trees* |
|---|---|---|---|
| | Crestline (E ½) | 3,000 | 100 |
| | Arrowhead | 8,000 | 400 |
| Arrowhead | Rim (east portion) | 500 | 10 |
| | Snow Valley (N½) | 2,000 | 20 |
| | Green Valley (S ½) | 500 | 5 |
| San Jacinto | San Jacinto | 3,500 | 50 |
| | Idyllwild | 2,500 | 25 |
| TOTALS | | 20,000 | 610 |

* These estimates are based on the expected ratio of winter brood trees to the number of summer brood trees which were visible at the time of the survey, November 1. The actual number of trees can be determined only by a complete spotting survey of the area.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT LABORATORY - BERKELEY, CALIFORNIA

# 1939

## FOREST INSECT SURVEY

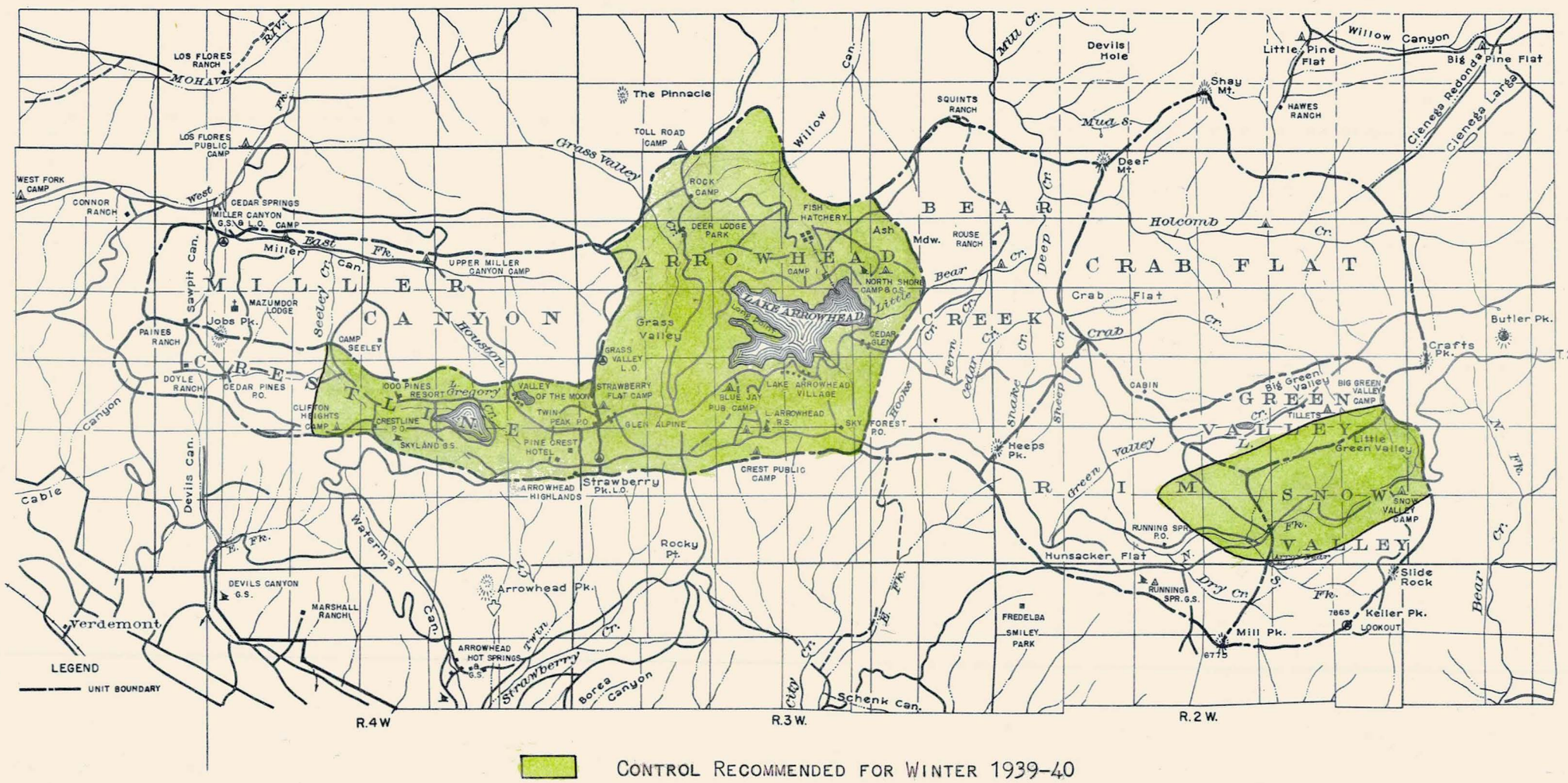
# ARROWHEAD INFESTATION AREA

SAN BERNARDINO COUNTY, CALIFORNIA
SAN BERNARDINO MERIDIAN

SCALE
In 0 ½ 1 2 3 Miles

N

| ESTIMATED UNIT LOSS 1939 | |
|---|---|
| UNIT | No. TREES |
| MILLER CANYON ..... | 60 |
| CRESTLINE ..... | 250 |
| ARROWHEAD ..... | 1000 |
| BEAR CREEK ..... | 50 |
| CRAB FLAT ..... | 300 |
| RIM ..... | 25 |
| SNOW VALLEY ..... | 40 |
| GREEN VALLEY ..... | 10 |
| TOTAL.. | 1485 |




LEGEND
UNIT BOUNDARY

CONTROL RECOMMENDED FOR WINTER 1939-40

8/14/39 R.R.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT LABORATORY - BERKELEY, CALIFORNIA

# 1939

## FOREST INSECT SURVEY

# BIG BEAR INFESTATION AREA

SAN BERNARDINO COUNTY, CALIFORNIA

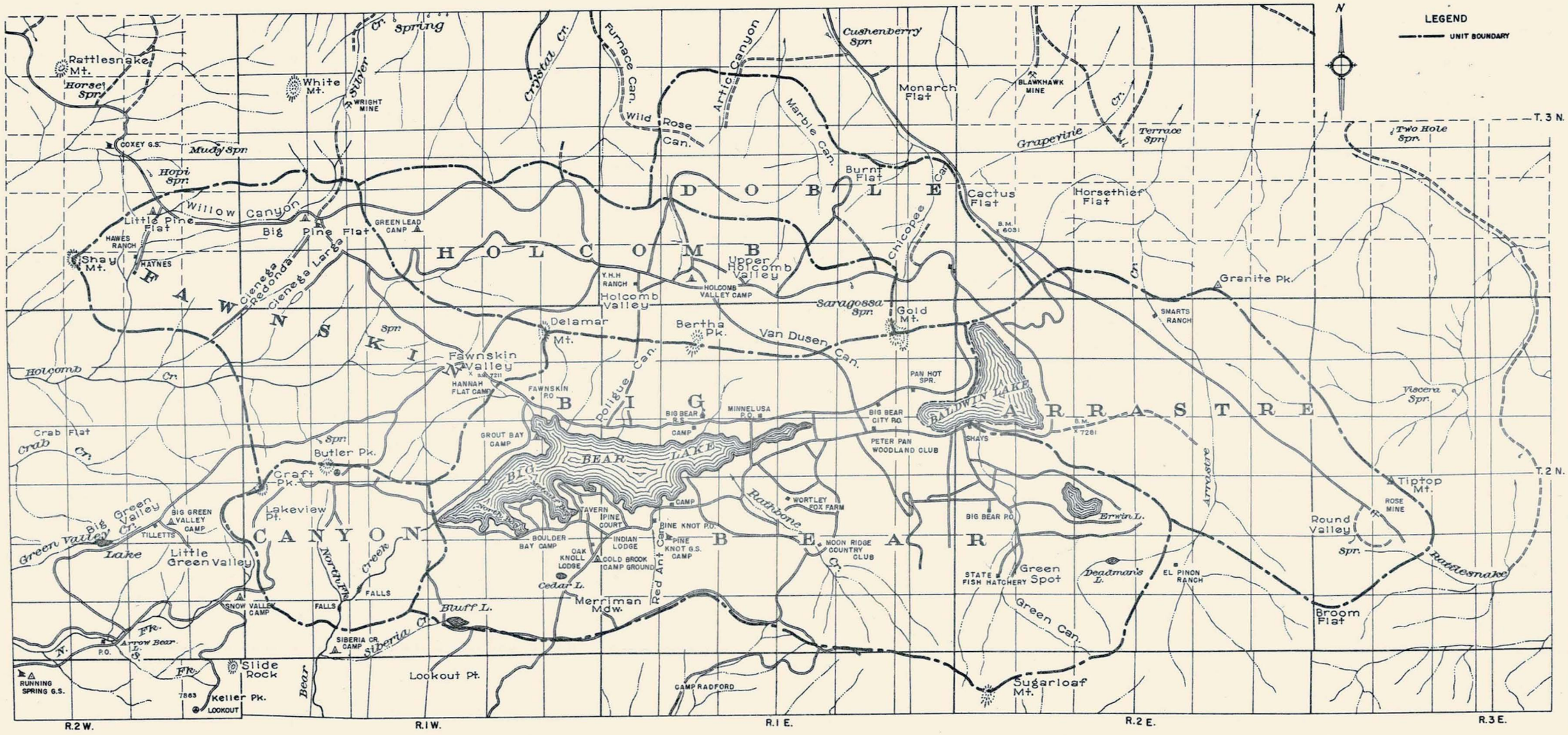
SAN BERNARDINO MERIDIAN

SCALE

In 0 ½ 1 2 3 Miles

## ESTIMATED UNIT LOSS 1939

| UNIT | No. TREES |
|---|---|
| CANYON ..... | 10 |
| FAWNSKIN ..... | 65 |
| HOLCOMB ..... | 50 |
| DOBLE ..... | 20 |
| ARRASTRE ..... | 0 |
| BIG BEAR ..... | 25 |
| TOTAL ..... | 170 |

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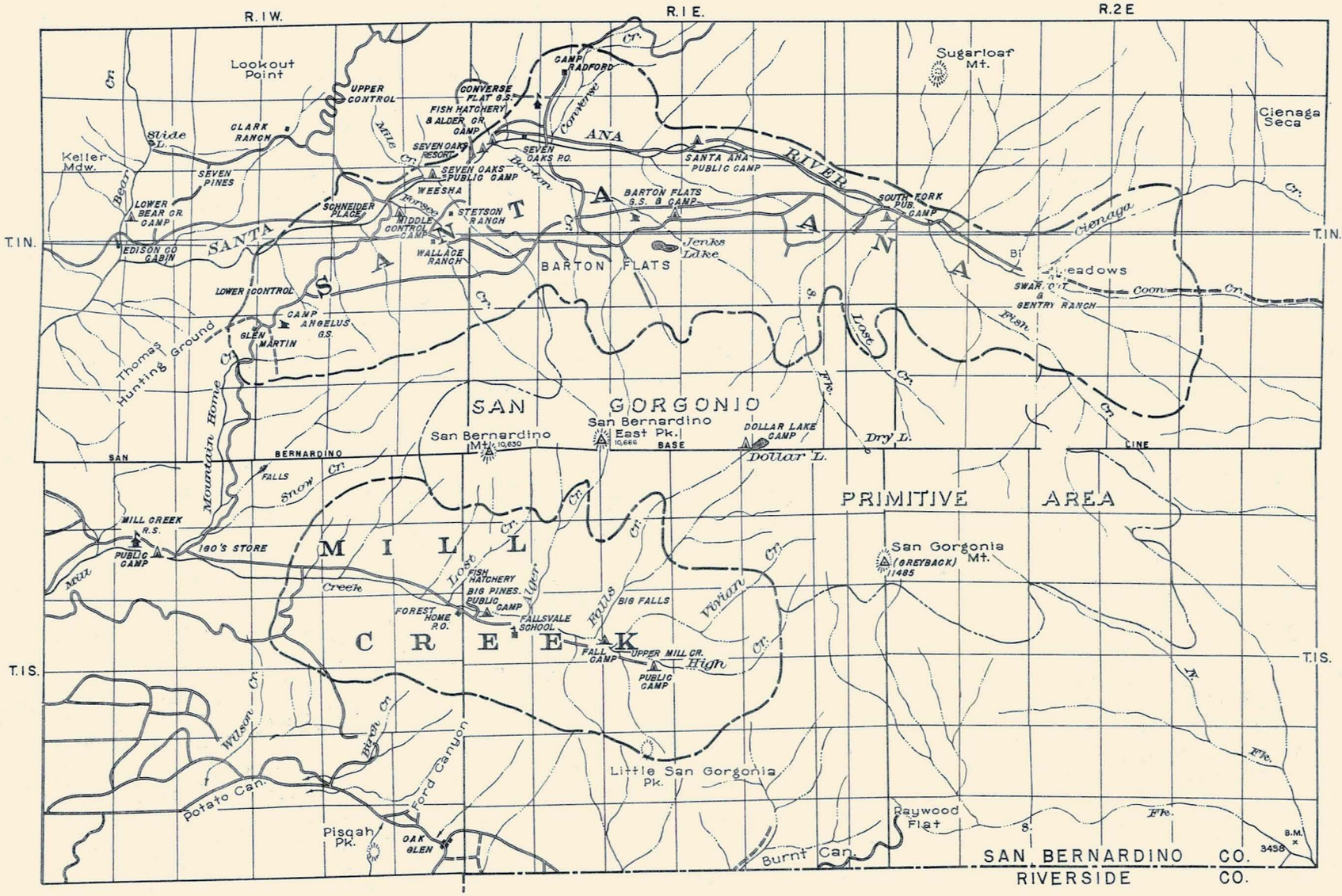


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FOREST INSECT LABORATORY - BERKELEY, CALIFORNIA

# 1939
## FOREST INSECT SURVEY
## SANTA ANA-MILL CREEK INFESTATION UNIT
SAN BERNARDINO COUNTY, CALIFORNIA

SCALE
In 0 ½ 1 2 3 Miles

SAN BERNARDINO MERIDIAN

N

LEGEND

UNIT BOUNDARY

ESTIMATED UNIT LOSS 1939

| UNIT | No. TREES |
|---|---|
| SANTA ANA ..... | 70 |
| MILL CREEK ..... | 50 |
| TOTAL ... | 120 |

8/5/39 R.R.

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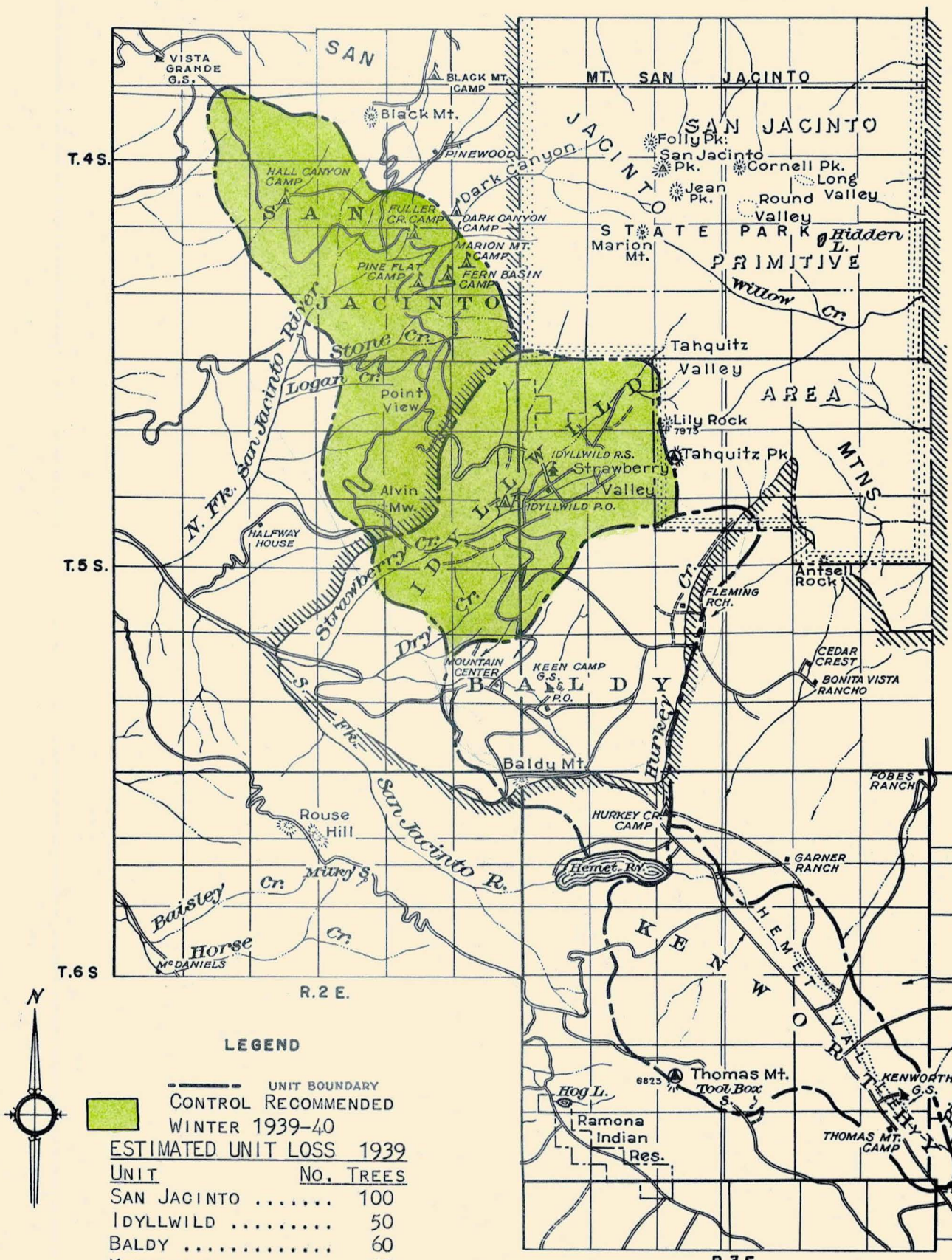
FOREST INSECT LABORATORY- BERKELEY, CALIFORNIA

1939
FOREST INSECT SURVEY

# SAN JACINTO INFESTATION AREA

RIVERSIDE COUNTY, CALIFORNIA
SAN BERNARDINO MERIDIAN

SCALE
In 0 ½ 1 2 3 4 Miles

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## LEGEND

UNIT BOUNDARY
CONTROL RECOMMENDED WINTER 1939-40

ESTIMATED UNIT LOSS 1939

| UNIT | No. TREES |
|---|---|
| SAN JACINTO ..... | 100 |
| IDYLLWILD ..... | 50 |
| BALDY ..... | 60 |
| KENWORTHY ..... | 50 |
| TOTAL .... | 260 |

6/22/39 B.R.